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# General Practice in Tasmania 2019

**June 2020**

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Individual general practices that contribute data to the PHIN dataset can access their own practice data here: www.phnexchange.com.au/home.php?phn=601.

Primary Health Tasmania acknowledges Pen CS for providing the software employed in PHIN data extraction.

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Data completeness varies across fields, therefore Primary Health Tasmania can make no assertion as to the quality of data captured and represented in the PHIN dataset.



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## Abbreviations

| Abbreviation | Description |
|---|---|
| ABS | Australian Bureau of Statistics |
| ADHD | Attention Deficit and Hyperactivity Disorder |
| AHPRA | Australian Health Practitioner Regulation Agency |
| AIC | Akaike information criterion |
| AIHW | Australian Institute of Health and Welfare |
| ASGS | Australian Statistical Geography Standard |
| ATSI | Aboriginal or Torres Strait Islander |
| BEACH | Bettering the Evaluation and Care of Health survey |
| BMI | Body mass index |
| COPD | Chronic obstructive pulmonary disease |
| COAD | Chronic obstructive airway disease |
| CPD | Continuing professional development |
| CVD | Cardiovascular disease |
| DALY | Disability adjusted life year |
| ED | Emergency department |
| ERP | Estimated residential population |
| FTE | Full-time equivalent |
| GP | General practitioner |
| ICPC | International Classification of Primary Care |
| ICS | International Classification for Standards |
| IRSAD | Index of Relative Socio-economic Advantage and Disadvantage |
| LGA | Local government area |
| NA | Not applicable |
| PenCS PATBI | Software and database for extracting general practice data |
| PHIN | Primary Health Information Network |
| PHN | Primary Health Network |
| PIP QI | Practice Incentives Program, Quality Improvement |
| PPH | Potentially preventable hospitalisations |
| RACGP | Royal Australian College of General Practitioners |
| SA2 | ABS Statistical Area 2 |
| SEIFA | Socio-Economic Indexes For Areas |
| SLK | Statistical Linkage Key |
| SNOMED CT | System of Nomenclature for Medical and Clinical Terminology |
| STI | Sexually transmitted infection |

# EXECUTIVE SUMMARY

**General practice is integral to the healthcare system, however little quantitative data has been available to help understand the depth and breadth of work undertaken every day by general practice teams.**

The absence of comprehensive general practice data is recognised as a significant gap in the story of health care and in determining healthcare needs. Good quality health policy, programs and services require comprehensive healthcare data from reliable sources.[1] The Primary Health Information Network (PHIN), established by Primary Health Tasmania, is a system for the regular collection, analysis, interpretation and feedback of data from general practices in Tasmania. A key enabler to compiling the PHIN dataset is the Practice Incentives Program Quality Improvement Incentives (PIP QI) program, which was introduced in August 2019. PIP QI provides remuneration for GPs who participate in data-sharing activities and the development of quality improvement activities in collaboration with their local Primary Health Network (PHN). The goal of the PHIN dataset is to use data-driven approaches to improve patient care and outcomes. This is essential to ensure sufficient investment is made in general practice and its supporting primary care structures to provide ever-increasingly complex, chronic disease care.

This report provides a unique, contemporary and objective insight into Tasmanian general practice through a 12-month snapshot from 1 January to 31 December 2019. It focuses on describing general practice and GPs in Tasmania, and the patients that they see. It provides information on the demographics of patients, the location and frequency of their general practice visits and it describes their chronic conditions, comorbidity and mental health. The PHIN dataset is representative of the population with nearly three-quarters of accredited general practices contributing and nearly three-quarters of Tasmanians included.

**What do we already know?**

Tasmania has fewer full-time equivalent GPs per 100,000 population than Australia as a whole. The Tasmanian general practice workforce is older and more likely to be female compared to the national average. Existing data shows that GPs frequently undercharge or do not charge for some of their services, and this is often associated with caring for older female patients with one or more chronic conditions.

Compared with the average Australian, Tasmanians are older, experience greater socioeconomic disadvantage, have lower population-level educational attainment, lower employment rates, and lower personal and household incomes. Many risk factors are also less favourable in Tasmania with higher rates of smoking, obesity, and alcohol consumption. Consequently, Tasmanians have higher rates of chronic disease and higher rates of comorbidity compared with national rates. Tasmania also has the highest mortality rate and one of the highest rates of potentially avoidable deaths in Australia. Some Tasmanians find it difficult to access a GP and some communities struggle to recruit and retain GPs.

**What does this report add?**

Consistent with national findings, older Tasmanians are more likely than younger Tasmanians to see a GP. Females are more likely than males to see a GP. The top five coded conditions seen in general practice in 2019 were: hypertension, depression, hyperlipidaemia, asthma and osteoarthritis. Over half the patients who saw a GP in Tasmania in 2019 had a common chronic condition recorded. The PHIN dataset shows the most common chronic condition clusters seen were chronic musculoskeletal problems, mental health problems, asthma, diabetes, and cardiovascular conditions.

Nearly 30% of Tasmanians had two or more common chronic conditions. The prevalence of comorbidity increased with age and was more prevalent in those aged 60 years and over. Other factors associated with increased comorbidity were female gender and living in a rural rather than an urban area.

Mental health and wellbeing is an issue in Tasmania. A mental health condition was recorded for around 20% of the population captured in the PHIN dataset. One-third of this population had two or more mental health conditions recorded. The most prevalent mental health conditions managed in general practice were depression and anxiety. Depression comprises the largest burden of mental health problems seen in general practice, both in terms of the number of individuals seen and the number of appointments required per person per year.

These results highlight the strong focus that GPs have on chronic disease prevention and diagnosis. They show that GPs are assessing, screening, diagnosing and coding long-term serious conditions.

On average, Tasmanians booked an appointment to see a GP seven times in 2019. Almost one in five Tasmanians booked 12 or more appointments per year with a GP. Booking 12 or more appointments in a year was associated with increasing comorbidity, increasing age, female gender, socioeconomic disadvantage, self-identifying as an Aboriginal or Torres Strait Islander person and being a current smoker.

Tasmanians may be more likely to see their GP more often because Tasmanians are on average older, sicker and more socioeconomically disadvantaged than Australians in general. In some areas people may need to rely on their GP more heavily because of reduced access to secondary and tertiary care, allied health practitioners and community service supports. Over half of those who visited their GP more than 12 times a year were in the most socioeconomically disadvantaged group.

This report will be updated annually. Supplemental reports will include information on diagnoses, referral and coordination of care for those with common chronic disease. As general practice is one component of a quality primary healthcare service, we will work to include other sources of primary healthcare data in future.

### Key messages

- GPs have a strong focus on chronic disease prevention, early diagnosis and management.
- GPs are diagnosing and managing patients with complex comorbidities.
- The top five coded conditions seen in general practice in 2019 were: hypertension, depression, hyperlipidaemia, asthma and osteoarthritis.
- The most common chronic condition clusters seen by Tasmanian GPs in 2019 were chronic musculoskeletal problems, mental health problems, asthma, diabetes and cardiovascular conditions.
- Over half (53.0%) of patients who saw a GP in Tasmania in 2019 had at least one common chronic condition coded. For two or more conditions, the figure was just under one-third (29.3%).
- Most Tasmanians see a GP multiple times per year.
- On average, each Tasmanian booked an appointment to see a GP seven times in 2019.
- Almost one in five Tasmanians booked an appointment to see a GP 12 or more times in 2019. Factors associated with 12 or more visits per year were: increased comorbidity, increasing age, female gender, self-identifying as an Aboriginal or Torres Strait Islander person, increasing socioeconomic disadvantage and being a current smoker.
- Some Tasmanians are prepared to travel long distances to see a GP.
- The PHIN general practice dataset will contribute significantly to building a comprehensive healthcare picture in Tasmania. Primary Health Tasmania is working to expand and improve this dataset.

# CHALLENGES

## Health system challenges

Australia has an excellent health system, but challenges exist. These include:

- an ageing population
- increasing burden of chronic disease
- increasing demand on health services
- increasing costs
- health workforce supply and distribution issues
- ensuring the best use of emerging health technologies
- making better use of health data.[1]

**Tasmanians are older, more socioeconomically disadvantaged, and have lower levels of educational attainment, employment and income, compared to the average Australian.**

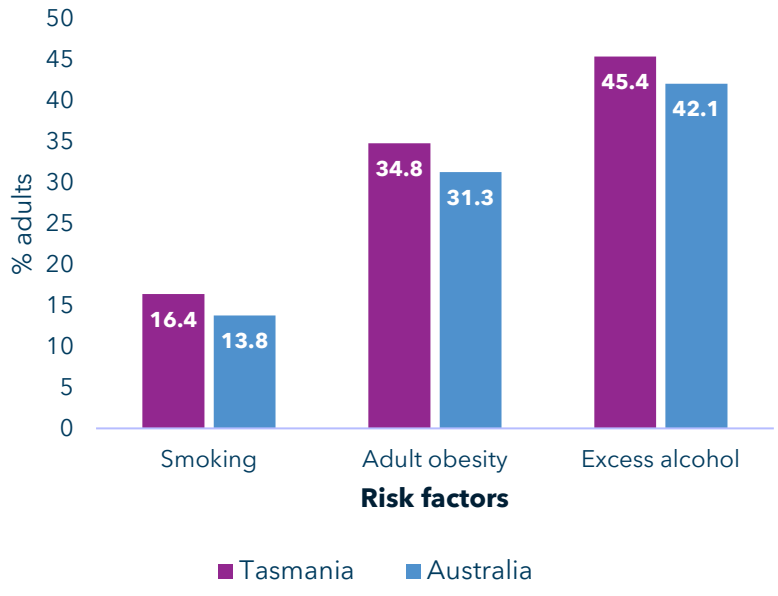
## Tasmania faces additional challenges

Compared with the average Australian, Tasmanians are older, experience greater socioeconomic disadvantage, have lower population level educational attainment, lower employment rates, and lower personal and household incomes. Tasmanian Aboriginal and Torres Strait Islander people are more likely to report fair or poor health than Tasmanians overall.[2]

## Health risk factors

Many risk factors are less favourable in Tasmania compared with Australia overall. Smoking and adult obesity rates are higher, more adults exceed the single occasion alcohol consumption risk guideline, physical activity levels are low, and nutritional intake is poor[1] (see Figure 1).

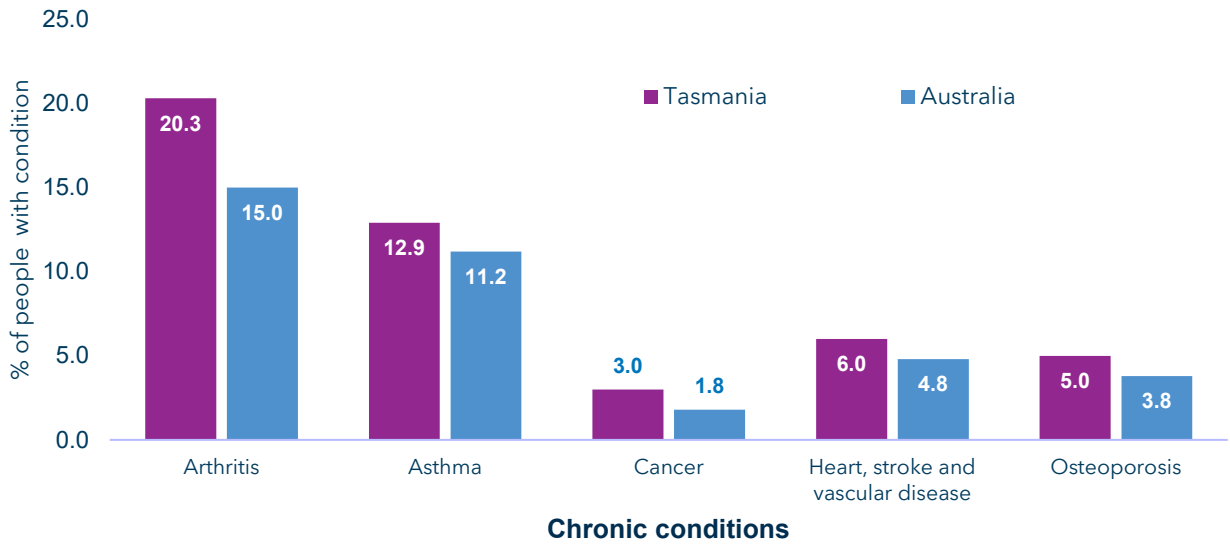
*Figure 1. Comparison of percentage of adults with lifestyle risk factors, Tasmania compared to Australia, 2018.*



## Self-reported health

Fewer Tasmanians aged 15 years and over considered themselves to be in excellent or very good health, when compared with rates reported nationally (52.5% compared to 57.2%). Tasmanians also had higher rates of many chronic conditions (see Figure 2).[3]

*Figure 2. Self-reported percentage of people with chronic conditions, Tasmania compared to Australia, 2019.*




The older age structure of Tasmania (median age of 41 years compared with 37 years nationally) contributes to these differences, however the Australian Institute for Health and Welfare (AIHW), reports the difference for arthritis and asthma remained even after age standardisation.[3]

## Mortality and avoidable deaths

Tasmania has the highest mortality rate and one of the highest rates of potentially avoidable deaths in Australia.[2] In 2018–19, the highest proportion of people who deferred seeing a GP due to cost was in Tasmania (8.6% compared with 3.4% nationally).[4]

**Tasmanians have higher rates of risk factors including smoking, obesity, and alcohol consumption than for Australians in general.**

# ABOUT THE PRIMARY HEALTH INFORMATION NETWORK DATASET

## What is the PHIN dataset?

The Primary Health Information Network (PHIN) was established by Primary Health Tasmania to provide regular collection, analysis and reporting expertise for general practices to aid interpretation of their data. Feedback is provided individually to the contributing practices. The goal of the PHIN dataset is to use data-driven approaches to improve patient care and outcomes. It may achieve this by:

- contributing to data-driven quality improvement at the practice level
- enabling better population health planning and direction of resources
- providing evidence for the efficacy of primary health care
- providing a better understanding of the primary healthcare landscape
- improving the visibility of primary healthcare needs in Tasmania
- enabling more informed health choices
- guiding planning of Continuing Professional Development (CPD) education events
- driving research to identify and investigate variation between groups of people to better understand demand, health inequalities, and access to healthcare services.

Data is extracted monthly by the PenCS PatBI system from 94 clinical information system databases representing 107 individual general practices across Tasmania. These practices account for three-quarters of accredited general practices across the state. Each contributing practice has signed a data-sharing agreement with Primary Health Tasmania. Data from Aboriginal health services is not included in this dataset as they report key performance indicator information separately to the Australian Government. Some large corporate practices are not currently contributing data to the PHIN dataset.

This dataset is representative at a state level as it includes 386,983 patients or 73% of the Tasmanian population. The proportion of contributing practices varies from 0 to 100% across local government areas (LGAs) (see Figure 4). Results at an LGA level must be interpreted with caution as representativeness can be lost when examining areas with smaller populations. Importantly, representativeness is not just related to the proportion of practices contributing data but the number of full-time equivalent (FTE) GPs at each practice. Consequently, LGAs where 75% or more of practices participate are highlighted in this report. This includes 15 out of 29 LGAs. (See Figure 4.)

Only select coded conditions, measures and medications are currently available for analysis. A coded condition refers to a diagnosis that is entered into a defined field in the clinical software. An absent condition in this dataset does not necessarily mean that no coded condition was present; instead, it may mean that the coded condition is not currently being extracted into a table within PatBI by PenCS.

Only select fields are currently extracted and analysed in this dataset. For this report, information has only been considered if recorded in specific fields. Free text input has not been analysed, therefore, some counts may be underestimated as they are dependent on the quality of the data inputted at a practice level. The fields captured and analysed are outlined in the following locations:

https://help.pencs.com.au/display/ds/DOWNLOAD+ALL+PAT+CAT+USER+GUIDES+AS+PDF

https://help.pencs.com.au/display/ADM

Over time, the dataset will continue to evolve and improve, including through refined data extraction options. Data quality is an ongoing focus of work for Primary Health Tasmania.

### Notes on the data included in the PHIN dataset

Individuals who booked at least one appointment with a participating GP in Tasmania during the 2019 calendar year are included in this report. Appointment date is determined from the latest reported service encounter date falling within the 2019 calendar year. This dataset reports the date of the latest service encounter and the total number of appointments booked (not the total number of encounters that individual may have actually attended). Total appointments booked are therefore used as a proxy for number of GP visits per person.

The dataset represents the latest available information recorded for selected fields per individual at the time of the most recent data extraction (January 2020).

Results in this report have been disaggregated to local government area (LGA). The Australian Statistical Geography Standard (ASGS) Local Government Areas are an Australian Bureau of Statistics (ABS) approximation of officially gazetted local government areas as defined by each state and territory local government department.

The estimated residential population (ERP) varies across LGAs in Tasmania from just under 1,000 to as high as 68,000 people. Caution must be exercised when interpreting results with relatively small populations. This is because it is difficult to distinguish random fluctuation from true changes. Therefore, comparisons over time or between communities that are based on unstable rates can lead to unreliable conclusions.

Each graph or table has all relevant measures outlined as table footnotes immediately below.

Figures are not age-standardised unless otherwise stated.

Unique individuals are indicated within this dataset by an encrypted random number based on the Statistical Linkage Key 581 (SLK581) method as described by the AIHW. This identification relies on adequate biographic data quality at collecting practices. Individuals are not re-identifiable from this dataset.

# ABOUT GENERAL PRACTICE AND GENERAL PRACTITIONERS

## What is primary care in Australia?

In Australia, the major primary care services are general practice, allied health, pharmacy, nursing, dentistry, health promotion, maternal and child health, women's health and family planning.[5]

Strong primary care is an essential component of the health system. It contributes to lower rates of hospitalisation, fewer health inequalities and better health outcomes, including lower mortality.[6]

## The important role of general practice

General practice is the most utilised component of the primary care system.[7] Nationally, in 2018–19, around 83% of the population saw a GP.[1]

GPs provide a whole-of-person approach and work in the context of a patient's family and community. They care for people across the life cycle from birth to death and provide comprehensive care to patients over long periods of time.[7]

The principal roles of general practice are to:

- prevent illness
- identify risk factors
- offer early intervention
- provide care for episodic illness and chronic disease
- diagnose, refer and coordinate care for patients with acute and serious illness.[7]

## Profile of general practice

**In 2019, there were 165 general practices and 918 GPs in Tasmania.**

There are over 6,500 accredited general practices in Australia.[4] General practice accreditation is independent recognition that practices meet the requirements of the governing national industry standards, set by the Royal Australian College of General Practitioners. Nationally, the vast majority of GPs work in a group private practice, with almost 70% identifying their main workplace as a 'non-corporate' group practice. More than one-third of GPs work in a practice with six to 10 GPs. Over time, general practices have increased in size. The proportion of practices with 11 or more GPs has increased from 21% in 2017 to 34% in 2019.[8]

In 2019 in Tasmania there were 165 general practices, of which 144 were accredited. Although practices are situated across the state, they are concentrated in the Hobart, Launceston and Clarence LGAs.[9]

## Profile of GPs

The number of GPs in Australia continues to increase each year. In 2018, there were 36,858 GPs in Australia. There were 918 GPs in Tasmania. Tasmania had fewer full-time equivalent (FTE) GPs per 100,000 population than Australia as a whole (see Table 1).

*Table 1. Number and rate of full-time equivalent (FTE) GPs in Australia, 2018.*

| Measure | Tasmania | Australia |
|---|---|---|
| Total individual GPs | 918 | 36,858 |
| Full-time equivalent GPs | 560 | 28,346 |
| Full-time equivalent GPs per 100,000 people | 105.4 | 112.6 |

Nationally, there are several demographic changes occurring within the GP workforce, which include an increasing proportion of female GPs, and rural GPs ageing more quickly than urban GPs.[10]

In 2018-19, Tasmanian GPs were older than the national average age of GPs (see Table 2). Nationally 37.0% of GPs were aged 55 years and older, compared with 39.3% in Tasmania. Tasmania had a higher proportion of female FTE GPs (42.7%) compared with nationally (38.9%).[4] In Tasmania, female GPs tended to be younger and more likely to work part time compared with their male counterparts.[9]

*Table 2. Percentage of general practitioners across age brackets, Tasmania compared with Australia, 2018–19, Productivity Commission Report on Government Services 2020.*

| Full time equivalent proportions | | Tas % | Aus % |
|---|---|---|---|
| <35 years | | 12.3 | 10.6 |
| 35–44 years | | 19.6 | 24.6 |
| 45–54 years | | 28.8 | 27.8 |
| 55–64 years | | 29.0 | 25.1 |
| 65+ years | | 10.3 | 11.9 |
| **Total** | | **100.0** | **100.0** |

A large proportion of GPs have continued to work beyond the traditional retirement age of 65 years, with the trend to later retirement[10] consistent with trends in the general population.[11] Other literature suggests that many GPs are planning to retire earlier; this reflects an emerging trend among professionals and society generally, with reasons for earlier retirement including declining job satisfaction, excessive workload and increasing bureaucracy.[12]

## Location of GPs

Nationally, GPs are unevenly distributed across jurisdictions and remoteness areas.[13] The highest ratio of GPs to population was in Queensland (120.4 GPs per 100,000 population) and the lowest in the Australian Capital Territory (87.8 GPs per 100,000 population). Tasmania had 105.4 GPs per 100,000 population.[4]

Nationally, the GP to patient ratio also decreases as remoteness increases, meaning there are fewer GPs per person in regional and remote settings. The largest difference between the Tasmanian and national ratio of GPs to patients was in outer regional areas. (See Table 3).[4]

*Table 3. Distribution of GP workforce in Tasmania compared to Australia, 2018.*

| No. FTE GPs | Tasmania | Australia |
|---|---|---|
| Inner regional | 403 | 4,999 |
| Outer regional | 147 | 2,023 |
| Outer regional, remote and very remote | 159 | 2,395 |
| **Total** | **562** | **28,346** |
| **No. FTE GPs per 100 000 people** | **Tasmania** | **Australia** |
| Inner regional | 112.4 | 112.5 |
| Outer regional | 92.3 | 98.6 |
| Outer regional, remote and very remote | 93.8 | 94.1 |
| **Total** | **105.4** | **113.4** |
| Notes: | Australian Institute of Health and Welfare 2004. Rural, regional and remote health: a guide to remoteness classifications. Cat. no. PHE 53. Canberra: AIHW.<br>There are no 'Major cities' in Tasmania.<br>Remote and very remote numbers are not published separately for Tasmania. | |

## GPs often undercharge or don't charge for their time

Over the past decade the income gap between GPs and specialists has continued to widen, reducing the financial attractiveness of general practice.[10,14,15] Coupled with this, under the fee-for-service model, GPs often undercharge for their services and do much unpaid work. The average duration of GP consultations in Australia increased significantly between 2004–05 and 2013–14.[16] GPs were more likely to claim a level B consultation (standard consultation of less than 20 minutes) when a level C consultation (professional attendance, lasting at least 20 minutes) was more appropriate, given the actual consultation time and complexity.[17]

Non-billable time has been associated with 12.1% of patient encounters. Reasons for non-billable time included:

- arranging tests and referrals
- consulting medical specialists and allied health professionals
- medication renewals
- advice and education.

Non-billable time was independently associated with female GPs, younger GPs (under 55 years), female patients, patients aged 65 years and older, and management of one or more chronic problems at the recorded encounter.[18]

# WHO SEES A GP?

## In Australia

On an average day in Australia:

- 406,000 visits are made to GPs
- 21,000 presentations are made to public hospital emergency departments
- nearly 1 in 3 emergency department patients are subsequently admitted to hospital.[1]

Nationally in 2018–19, 83% of people aged 15 years and over saw a GP in the preceding 12 months. This varied by demographic and health characteristics, including:

- females (87.8%) were more likely to book an appointment to see a GP than males (77.6%)
- people aged 65 years and over (94.9%) were more likely to book an appointment to see a GP than those aged 15–24 years (70.3%)
- people who rated their health as fair or poor (96.5%) were more likely to book an appointment to see a GP than those who rated their health as excellent, very good or good (81.1%)
- people with a long-term health condition (94.4%) were more likely to book an appointment to see a GP than those without (71.2%).[1]

Comparative data from 2016 showed that on average, Tasmanian adults were more likely than other Australians to see a GP and medical specialists (see Table 4).[19]

*Table 4. Percentage of people who visited GPs or medical specialists, 2016.*

| Measure | Tasmania % | Australia % |
|---|---|---|
| | | |
| Saw a GP in preceding 12 months | 82.6 | 81.8 |
| Had a usual GP or place of care | 88.3 | 87.4 |
| Saw a medical specialist in preceding 12 months | 36.4 | 35.0 |

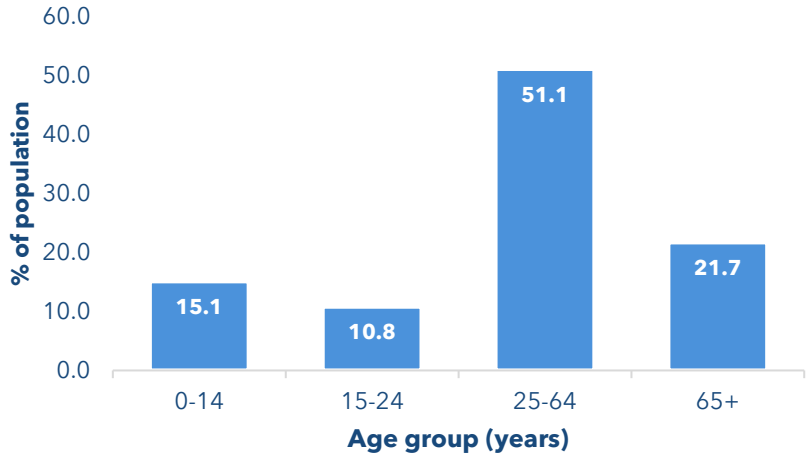
## In Tasmania

In 2019 in Tasmania, 386,983 individuals saw a GP in one of the 107 general practices who contribute their data to the PHIN dataset. Of these patients:

- 53.1% were female and 46.4% were male
- Just over half (51.1%) were aged between 25 and 64 years; the median age was 43 years (see Figure 3)
- 3.1% self-identified as Aboriginal or Torres Strait Islander
- 12.4% of those aged 15 years and over were daily smokers, 46.8% were never smokers
- 4.6% provided an address outside of Tasmania.

See Appendix 1: Demographic summary of all people who booked an appointment with a GP in Tasmania in 2019.

*Figure 3. Age distribution of people visiting a GP, Tasmania, PHIN 2019.*




In 2019, older people were more likely to visit a GP than younger people. Almost 22 % (21.8%) of those aged 65 years and older saw a GP compared with 10.8% of those aged 15-24 years. Females were also more likely to book an appointment to see a GP than males, according to the PHIN dataset. People with multiple comorbidities were more likely to visit GPs than comparable individuals with fewer comorbidities. This is consistent with national data.

The proportion of daily smokers was lower than expected. This could be due to under-reporting by patients for reasons including fear of stigma and discrimination or under-reporting by GPs with information not gathered, updated or not recorded.

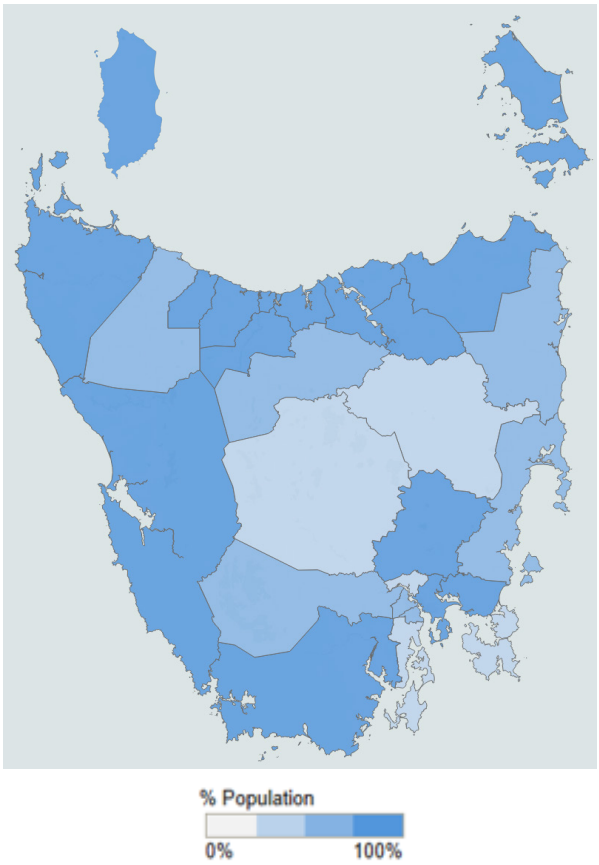
The proportion of people self-identifying as Aboriginal or Torres Strait Islander was lower than the proportion published in the 2016 Census data (3.1% versus 4.6%),[20] most likely because Aboriginal health services provide their data nationally and not to Primary Health Networks at this stage.

## WHERE DID PEOPLE VISIT A GP IN TASMANIA?

The proportion of the population who saw a GP varied by LGA in Tasmania. The PHIN dataset shows that in LGAs where 75% or more of practices contributed, 58–100% of the population saw a GP (see Figure 4). Some people are prepared to travel long distances to see a GP and proximity is only one factor which determines whether people access a particular general practice. This was particularly evident in LGAs where no practices contributed data but just over 40% of the population saw a GP in another LGA at a practice that did contribute data. Over time, as more practices contribute, the proportion of people who see a GP by location may become clearer and reasons for disparities can be examined.

*Figure 4. Percentage of individuals per LGA who attended a GP during 2019, Tasmania, PHIN 2019.*

| Local Government Area | No. of general practices in LGA | Practices contributing data to PHIN | | % ERP who saw a GP |
|---|---|---|---|---|
| | | No. | % | |
| Break O'Day | 2 | 1 | 50 | 75 |
| Brighton | 3 | 2 | 66.7 | 35 |
| Burnie | 5 | 3 | 60 | 83 |
| Central Coast* | 4 | 4 | 100 | 83 |
| Central Highlands | 2 | 0 | 0 | 43 |
| Circular Head* | 1 | 1 | 100 | 89 |
| Clarence | 19 | 14 | 73.7 | 95 |
| Derwent Valley* | 1 | 1 | 100 | 73 |
| Devonport* | 6 | 5 | 83.3 | 94 |
| Dorset | 4 | 2 | 50 | 76 |
| Flinders* | 1 | 1 | 100 | 100 |
| George Town* | 1 | 1 | 100 | 94 |
| Glamorgan Spring Bay* | 4 | 3 | 75 | 58 |
| Glenorchy | 9 | 6 | 66.7 | 52 |
| Hobart | 34 | 18 | 52.9 | 64 |
| Huon Valley* | 7 | 6 | 85.7 | 87 |
| Kentish | 2 | 1 | 50 | 88 |
| King Island* | 1 | 1 | 100 | 97 |
| Kingborough | 8 | 2 | 25 | 39 |
| Latrobe* | 2 | 2 | 100 | 88 |
| Launceston | 22 | 14 | 63.6 | 76 |
| Meander Valley* | 3 | 3 | 100 | 69 |
| Northern Midlands | 4 | 2 | 50 | 49 |
| Sorell | 3 | 2 | 66.7 | 91 |
| Southern Midlands* | 1 | 1 | 100 | 82 |
| Tasman | 1 | 0 | 0 | 42 |
| Waratah-Wynyard* | 3 | 3 | 100 | 74 |
| West Coast* | 4 | 4 | 100 | 99 |
| West Tamar* | 5 | 4 | 80 | 89 |
| **Total** | **162** | **107** | **66** | **73** |




Notes:
Numerator: Total number of individuals per LGA who attended a GP during 2019.
Denominator: Total number of projected individuals in that LGA as at 30 June 2019 estimated by series B Tasmanian Department of Treasury and Finance.
Individuals with missing SA2 information have been excluded from the counts on these maps.
This table excludes Aboriginal health services data.
*LGAs with 75% or more of practices participating are shaded blue in the table.

## WHY DO PEOPLE SEE A GP?

General practice is the holder of much vital knowledge of the health of the community. Unfortunately, in recent years primary healthcare data has not been available to contribute to a more comprehensive picture of the healthcare system. There is also little published information on the incidence and prevalence of chronic conditions, comorbidity, management, and patient pathways through the health system.[21]

From 1998-2016, the *Bettering the Evaluation and Care of Health* (BEACH) survey collected data on GP activity in Australia. BEACH was an ongoing cross-sectional survey of general practice activity, that enrolled a new random sample of about 1000 GPs per year. Each GP provided details for 100 consecutive patient encounters. Since the cessation of BEACH in 2016, little information is published on why patients visit GPs, their diagnoses, treatment and referrals.

The PHIN dataset aims to fill some of these identified gaps for Tasmanians.

### Chronic conditions

The term 'chronic condition' refers to a wide group of conditions, illnesses and diseases. People diagnosed with one or more chronic conditions often have complex health needs, have poorer quality of life and die prematurely.

**Chronic conditions are long-lasting, need ongoing management, and place a heavy burden on individuals, their families, and the health system.**

Previously, BEACH data found that more than one-third of the problems managed in general practice were chronic, with at least one chronic problem being managed in 40.3% of visits. The top five most frequently managed chronic problems were: hypertension, depressive disorder, diabetes, chronic arthritis, and lipid disorders (see Figure 5).[22]

The BEACH report also found the most common problems managed in general practice were:

- problems of a general and unspecified nature including general check-ups, prescriptions and general immunisations (20% of encounters)
- respiratory problems including upper respiratory tract infections (19.5%)
- musculoskeletal problems including arthritis and back complaints (18.1%)
- skin problems (17.4%)
- circulatory problems (15.1%)
- endocrine and metabolic problems (13.5%) including diabetes and lipid disorders.[22]

More recent national chronic disease data comes from self-reported information from the ABS National Health Surveys. In 2017–18, just under half of Australian adults had one or more chronic conditions (see Figure 6). Australian females aged 15 years and over were more likely than males to have chronic conditions (56.5% compared to 50.8%). For children aged up to 14 years, boys were more likely than girls to have chronic conditions (24.2% compared to 15.9%).

The prevalence of chronic conditions increased with age, with 80% of people aged 65 years and over having one or more chronic conditions.[3]

The top five coded problems associated with GP visits in Tasmania in 2019, were: hypertension, depression, hyperlipidaemia, asthma, and osteoarthritis – see Figure 7. This is similar to the top five problems listed in the final BEACH report.[22]

*Figure 5. Top 5 most frequently managed problems in general practice, Australia, BEACH Survey, 2015–16.*

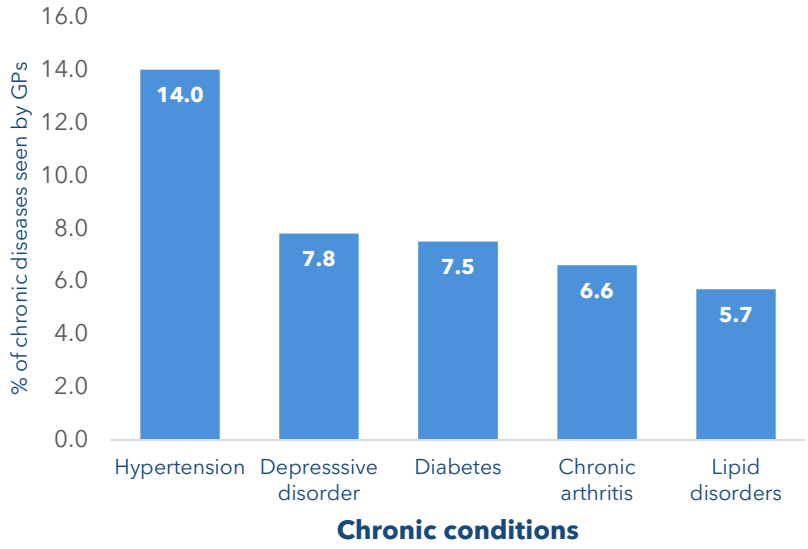



*Figure 6. Percentage of people self-reporting chronic conditions, ABS National Health Survey, 2017-18.*

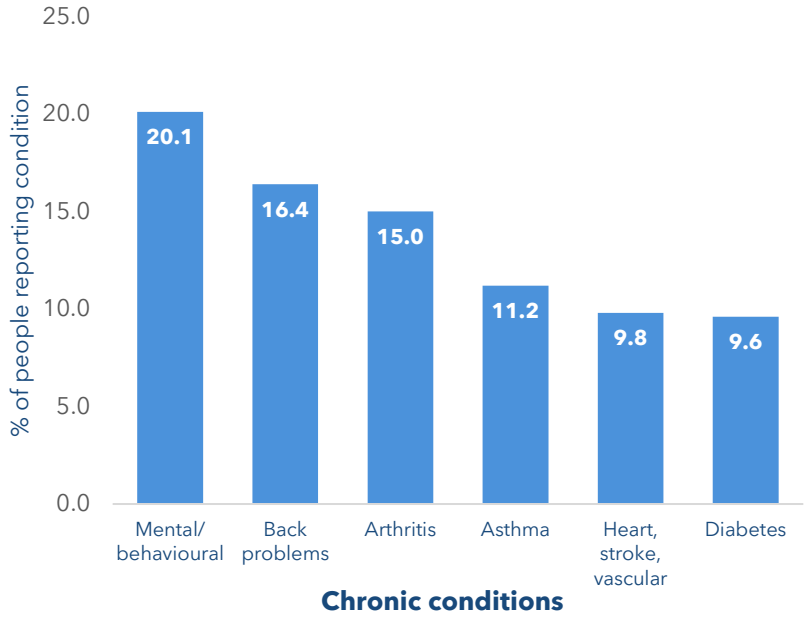
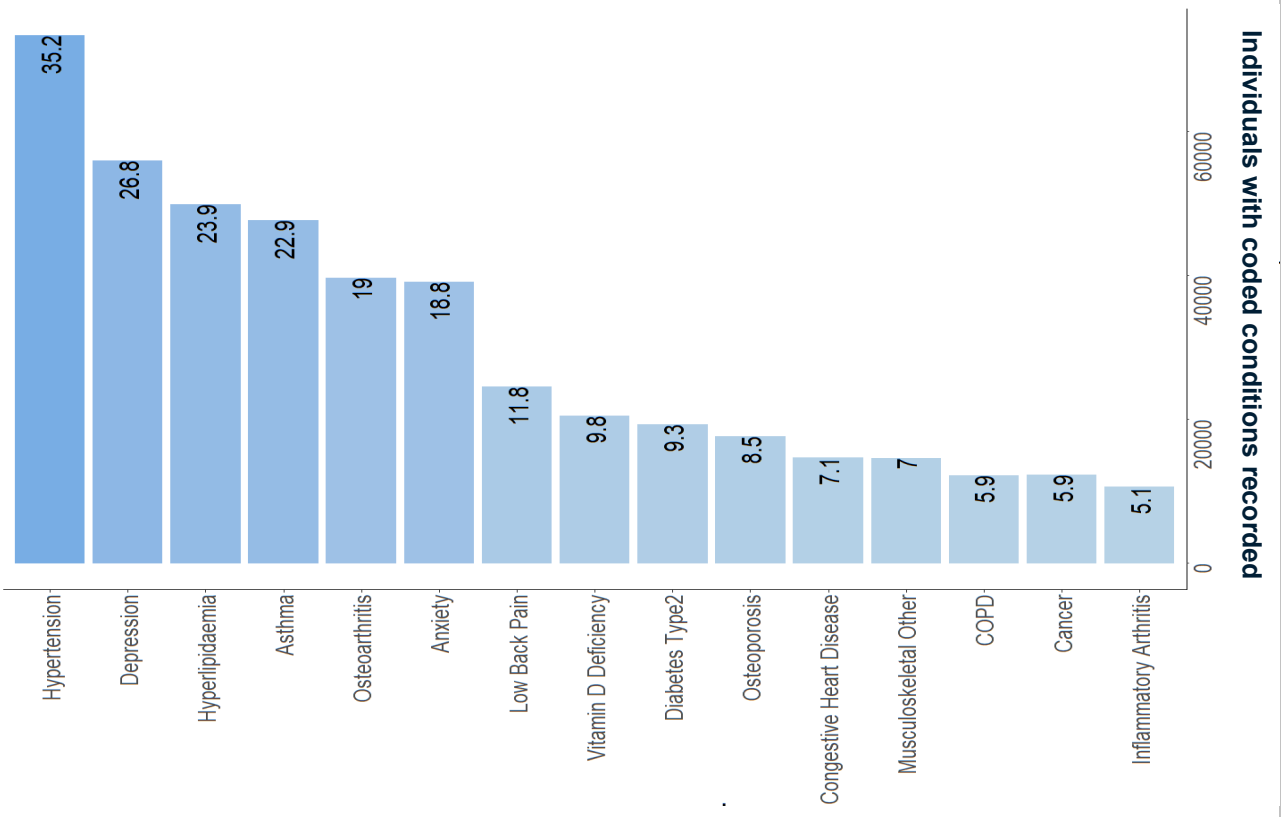


*Figure 5. Percentage and number of people who visited GPs for coded conditions, Tasmania, PHIN 2019.*




| | |
|---|---|
| Notes: | Measure: Count of individuals with a coded condition recorded. This is the y axis<br>Percentage calculations (column labels): numerator = count of individuals with a coded condition recorded, denominator = total number of individuals with a coded condition recorded<br>A coded condition is a condition or diagnosis captured in a defined field (not free text) that can be attached to a clinical code (e.g. ICPC, ICD, SNOMED). |

Chronic conditions have been clustered and reported in Table 5. Cardiovascular conditions are reported separately in Table 6. Figure 8 illustrates the frequency of chronic condition clusters reported by GPs seeing Tasmanians in 2019. All coded problems, other than those related to the cardiovascular or metabolic systems, have been aggregated into chronic condition clusters in Figure 8. This is to allow comparison of chronic condition clusters whilst not obscuring the frequency of problems related to the cardiovascular and metabolic systems.

The top five chronic condition clusters, or problems related to the cardiovascular system were: chronic musculoskeletal conditions (44.2%), mental health conditions (38%), hypertension (35.2%), hyperlipidaemia (23.9%), and asthma (22.9%) (see Figure 8).

**Over 53% of patients who saw a GP in Tasmania in 2019 had at least one common chronic condition coded and 29.3% had two or more common chronic conditions.**

The top five chronic condition clusters, disregarding hypertension and hyperlipidaemia, were: chronic musculoskeletal conditions (44.2%), mental health conditions (38%), asthma (22.9%), diabetes (12.8%), and chronic cardiovascular conditions (11.2%) (see Table 5).

*Table 5. Percentage of people with chronic condition clusters, Tasmania, PHIN 2019.*

| Chronic condition cluster | % of people identified as having a coded condition | Chronic conditions included in this cluster |
|---|---|---|
| Chronic musculoskeletal conditions | 44.2 | Osteoarthritis, low back pain, vitamin D deficiency, osteoporosis, musculoskeletal other, inflammatory arthritis, calcium deficiency |
| Mental health conditions | 38.0 | Depression, anxiety, ADHD, autism, depression postnatal, schizophrenia, bipolar |
| Asthma | 22.9 | Asthma |
| Diabetes | 12.8 | Any character combination including the word 'diabetes' |
| Cardiovascular conditions | 11.2 | Congestive heart disease, atrial fibrillation, myocardial infarction, heart failure, acute coronary syndrome, left ventricular hypertrophy, rheumatic heart disease |
| COPD | 5.9 | COPD or COAD |
| Cancer | 5.9 | Any character combination including the word 'cancer' or myeloma, leukaemia or lymphoma |
| Vascular disease | 4.4 | Stroke, peripheral vascular disease, carotid stenosis |
| Chronic renal disease | 4.4 | Any character combination containing the word 'renal' |
| Neuropathic pain | 2.2 | Neuropathic pain |
| Dementia | 1.4 | Any character combination containing the word 'dementia' |
| Drug abuse | 1.2 | Drug abuse |
| STI | 1.2 | Chlamydia, gonorrhoea, syphilis |

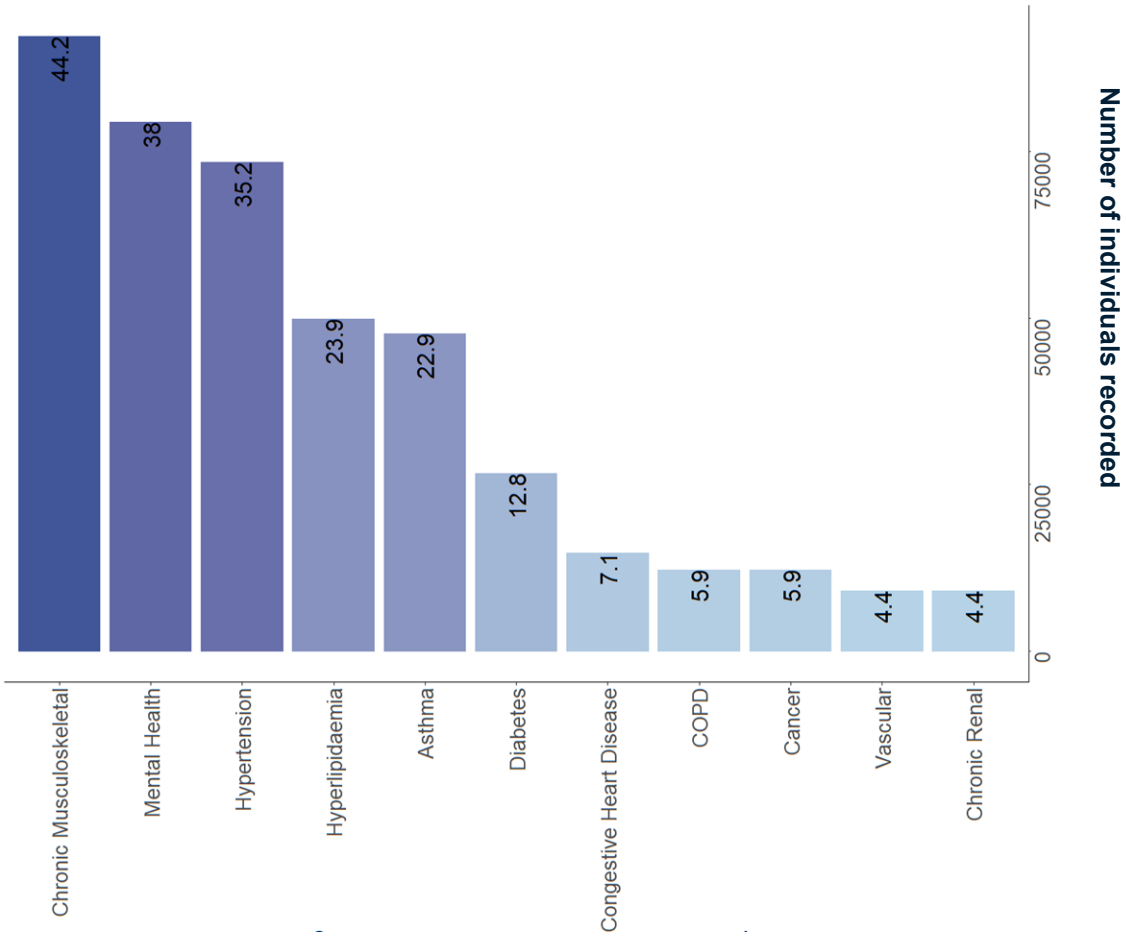
Notes: Numerator: Number of individuals with a coded condition within the condition cluster.
Denominator: Total number of individuals with a coded condition recorded.
Not age-standardised unless specified.
A coded condition is a condition or diagnosis captured in a defined field (not free text) that can be attached to a clinical code (e.g. ICPC, ICD, SNOMED).
Options limited to what is present in coded condition fields in the practice software.

*Table 6. Percentage of people with a coded cardiac condition, Tasmania, PHIN 2019.*

| **Cardiac conditions** | **% people** |
|---|---|
| Hypertension | 35.2 |
| Hyperlipidaemia | 23.9 |
| Congestive heart disease | 7.1 |
| Atrial fibrillation | 4.3 |
| Myocardial infarction | 2.5 |
| Heart failure | 1.9 |
| Heart failure chronic | 1.7 |
| Acute coronary syndrome | 0.3 |
| Left ventricular hypertrophy | 0.2 |
| Rheumatic heart disease | 0.0 |
| **Total (conditions clustered, excluding hypertension and hyperlipidaemia)** | **11.2** |

Notes: Numerator: number of individuals with a coded condition within the condition cluster.
Denominator: total number of individuals with a coded condition recorded.
Not age-standardised unless specified.
A coded condition is a condition or diagnosis captured in a defined field (not free text) that can be attached to a clinical code (e.g. ICPC, ICD, SNOMED).

*Figure 6. Percentage and number of people visiting a GP during 2019, Tasmania, PHIN 2019. Chronic condition clusters plus hypertension and hyperlipidaemia have been reported.*




| | |
|---|---|
| Notes: | All coded problems, other than those related to the cardiovascular or metabolic systems, have been aggregated into chronic condition clusters. This is to allow comparison of chronic condition clusters whilst not obscuring the frequency of hypertension and hyperlipidaemia.<br>Measure: count of individuals with a clustered coded condition recorded. This is the y axis.<br>Percentage calculations (data labels): Numerator: number of individuals with a coded condition within the condition cluster. Denominator: total number of individuals with a coded condition recorded numerator. |

## Period prevalence estimates

Prevalence is the number of individuals in a population who have a disease or health condition during a specific period of time, expressed as a percentage of the population. To calculate period prevalence estimates, both active and inactive patients in the clinical software have been included, (as defined by the RACGP).[23] The prevalence of most chronic conditions has increased over the past 20 years in Tasmania, with the largest increases reported for chronic musculoskeletal and mental health conditions (Figure 9). Sharp increases in reported prevalence from 2008 onwards may reflect the increased uptake of electronic clinical information systems in general practice around that time.

Current GP-coded point prevalence estimates (Table 7) were broadly consistent with published self-reported point prevalence estimates in the Tasmanian data from the National Health Survey (2017-18)[3] and lifetime prevalence estimates from the Tasmanian Population Health Survey (2016).[24] One exception was chronic kidney disease which had a higher GP-diagnosed rate. GP-coded data may be more objective. Issues with self-reporting bias include social desirability, recall period, sampling approach, and selective recall.[25]

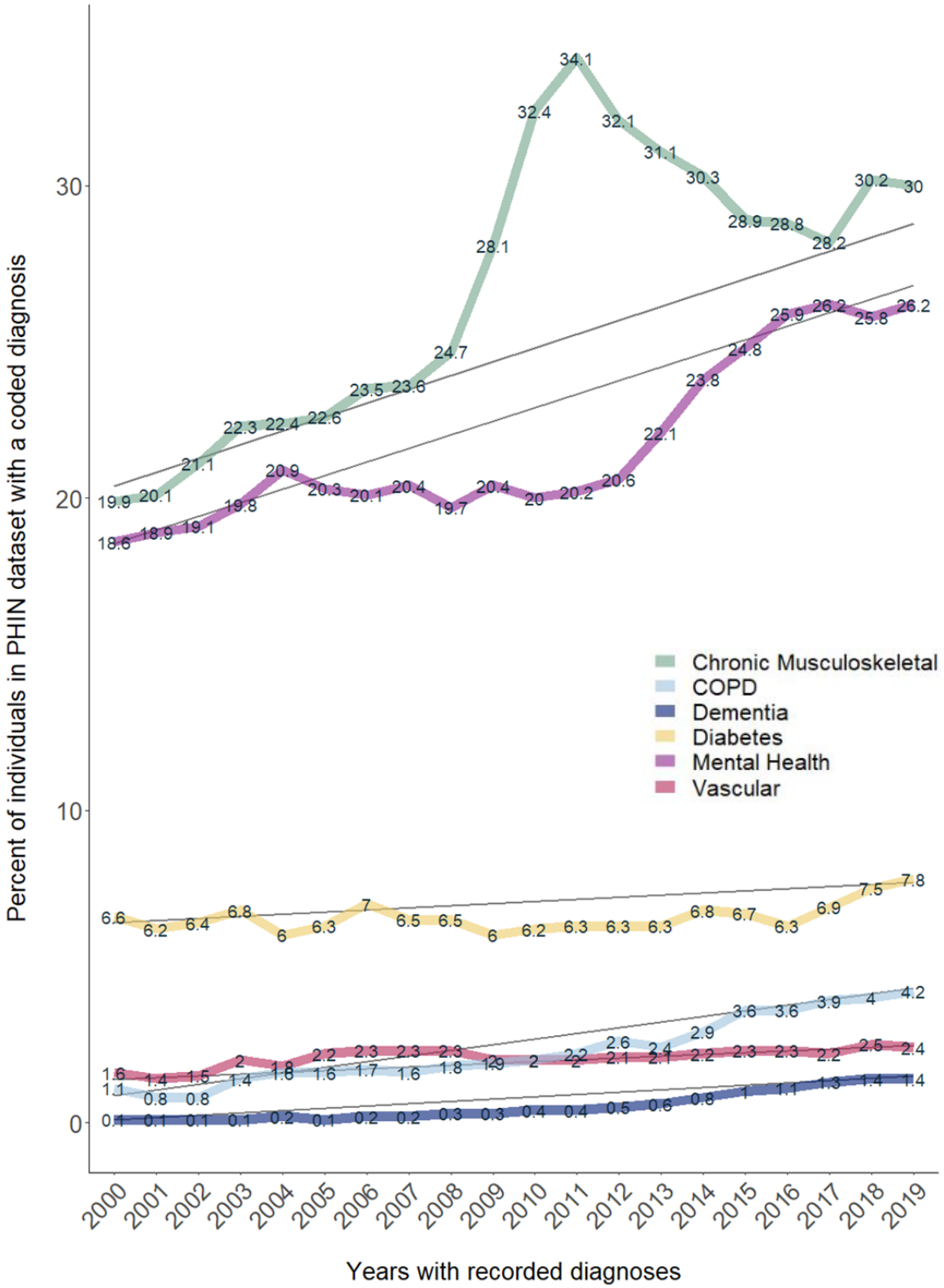
*Table 7. Comparison of GP-coded chronic conditions, PHIN 2019, to self-reported survey data, Tasmania, 2017–18.*

| Condition | Prevalence of GP-coded chronic conditions PHIN 2019[a] (%) | Self-reported chronic conditions 2017–18[b] (%) | Self-reported lifetime prevalence[j] (%) |
|---|---|---|---|
| Mental health[c] | 26.2 | 21.7 | 30 (depression & anxiety)[d] |
| Chronic musculoskeletal[e] | 30.0 | 20.3<br>18.2 (back problems)<br>5 (osteoporosis) | 29.4 (arthritis & osteoporosis)[d] |
| Asthma | 9.5 | 12.9 | 11.2[f] |
| Diabetes mellitus | 7.8 | 5.5 | 8.1[b] |
| Cancer | 2.9 | 3.0 | 8.5 |
| COPD | 4.2 | 2.7 | 3.7[g] |
| Chronic renal diseases[h] | 2.9 | 0.5 | NA |
| Hypertension | 15.8 | NA | NA |
| Hyperlipidaemia | 9.3 | NA | NA |
| Congestive heart disease | 3.6 | NA | NA |
| Vascular conditions[i] | 2.4 | NA | 2.8 (stroke)[e] |
| Heart failure | 1.8 | NA | NA |
| Myocardial infarction | 1.1 | NA | NA |

Notes

a. Not age-standardised unless specified.
b. Tasmanian data from the 2017–18 National Health Survey, Australian Institute of Health and Welfare, Australia's Health 2018. Cat No. AUS 222. 2018.
c. Includes depression, anxiety, ADHD, autism, depression postnatal, schizophrenia, bipolar.
d. Percentage lifetime prevalence, Tasmanian Population Health Survey 2016 p. 54 (self-reported, ever diagnosed chronic conditions, age-standardised).
e. Includes osteoarthritis, low back pain, vitamin D deficiency, osteoporosis, musculoskeletal other, inflammatory arthritis, calcium deficiency.
f. Australian Institute of Health and Welfare 2019. Australian Burden of Disease Study: impact and causes of illness and death in Australia 2015. Australian Burden of Disease series no. 19. Cat. No. BOD 22. Canberra: AIHW.
g. Australian Burden of Disease Study 2011; Table S3.1.1.
h. Includes any character combination containing the word 'renal'.
i. Includes stroke, peripheral vascular disease, carotid stenosis.
j. Department of Health and Human Services, et al. Report on the Tasmanian Population Health Survey 2016. Hobart; 2016.
k. NA – not available

*Figure 7. Trends in population prevalence estimates from active and inactive patients with a coded diagnosis, Tasmania PHIN 2019.*




| | |
|---|---|
| Notes: | Numerator: Number of individuals who have ever had a specific coded condition or condition cluster (by year condition coded).<br>Denominator: Number of individuals with any coded condition (by year condition coded).<br>In the graph above, only select chronic conditions have been plotted. |

## Comorbidity

This report uses the Australian Institute of Health and Welfare (AIHW) definition for comorbidity (or multimorbidity) as the presence of two or more of the following chronic conditions at the same time.[1]

- chronic obstructive pulmonary disorder (COPD)
- diabetes
- hyperlipidaemia
- chronic cardiac conditions
- chronic renal disease
- dementia and mental health conditions
- asthma
- hypertension
- chronic musculoskeletal conditions
- sexually transmitted infections (STIs)
- vascular disease

Definitions for comorbidity and multimorbidity vary. Consequently, published prevalence rates range from 13–72% in the general population.[26] National data showed that the rate of comorbidity in Australians was higher for: people aged 65 and over, females, people in the lowest socioeconomic areas and people living in regional and remote areas.[27]

Ageing is the most consistent and potent risk factor for multimorbidity. The prevalence of multimorbidity increases with age and is more prevalent in those aged 60 years and over[22,26,28], but many studies report high rates of multimorbidity amongst working-age populations.[28] Women and those with a lower socioeconomic status appear especially prone to developing multimorbidity.[28,29]

Over 53% of patients who saw a GP in Tasmania in 2019 had at least one common chronic condition coded. For two or more conditions, the figure was 29.3%. The factors associated with increased comorbidity were increasing age, female gender and living in a rural (rather than an urban) area.

## Mental health and wellbeing

Mental health and wellbeing is of particular concern in Tasmania. Tasmanian adults were more likely than Australians in general to experience high or very high levels of psychological distress (13.7% compared with 13.0% nationally).[30] According to AIHW data, almost 22% of Tasmanian adults had a mental or behavioural condition, 14% had an anxiety-related condition and nearly 12% had depression or feelings of depression.[3]

In Tasmania in 2019, 20.5% of people who saw a GP had a mental health problem coded. Of these nearly 80,000 people, the most common diagnosis was depression, followed by anxiety. One-third (33.8%) had two or more mental health conditions coded (see Table 8).

Depression comprises the largest burden of mental health problems seen in general practice both in the number of individuals seen and the number of appointments required per person per year. Consistent with national results, females were more likely to have anxiety or depression than males. People with depression were more likely to be older and required more appointments than people with anxiety.

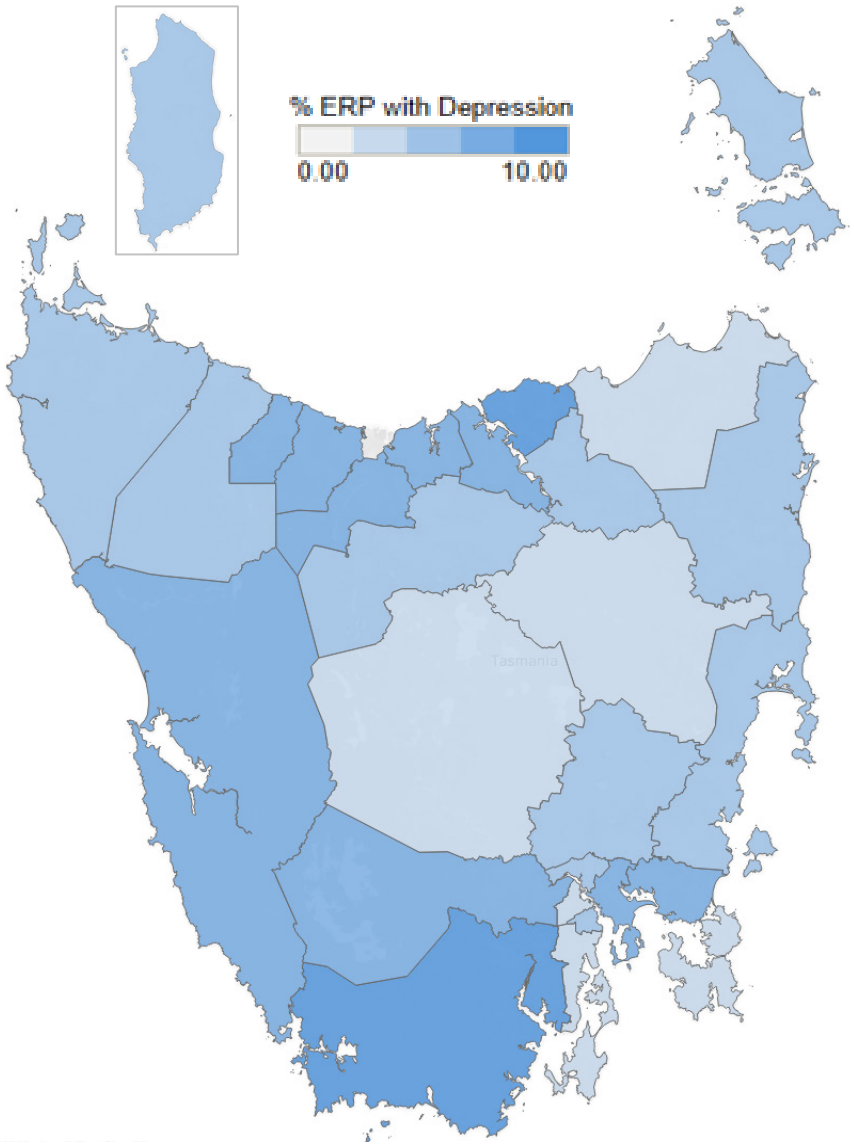
*Table 8. People with a coded mental health condition, Tasmania, PHIN 2019.*

| | Depression | Anxiety | All mental health conditions |
|---|---|---|---|
| Number of people with coded mental health condition | 56,694 | 39,187 | 79,466 |
| % people with coded mental health condition* | 70.5 | 49.3 | |
| Mean age (years) | 49.7 | 46.1 | 47.2 |
| % female | 63.9 | 65.5 | 61.4 |
| Mean number of appointments | 11.2 | 10.5 | 10.6 |
| Notes: * Proportions may not add up to 100% as an individual may have multiple diagnoses | | | |

Of people with a coded mental health condition, those aged 15–64 years were more likely to have two or more coded mental health conditions. Across all age groups, females were more likely to have a mental health condition except in the 0–14 age group, where males were more likely to have a mental health condition (68.3%) compared with females (31.4%).

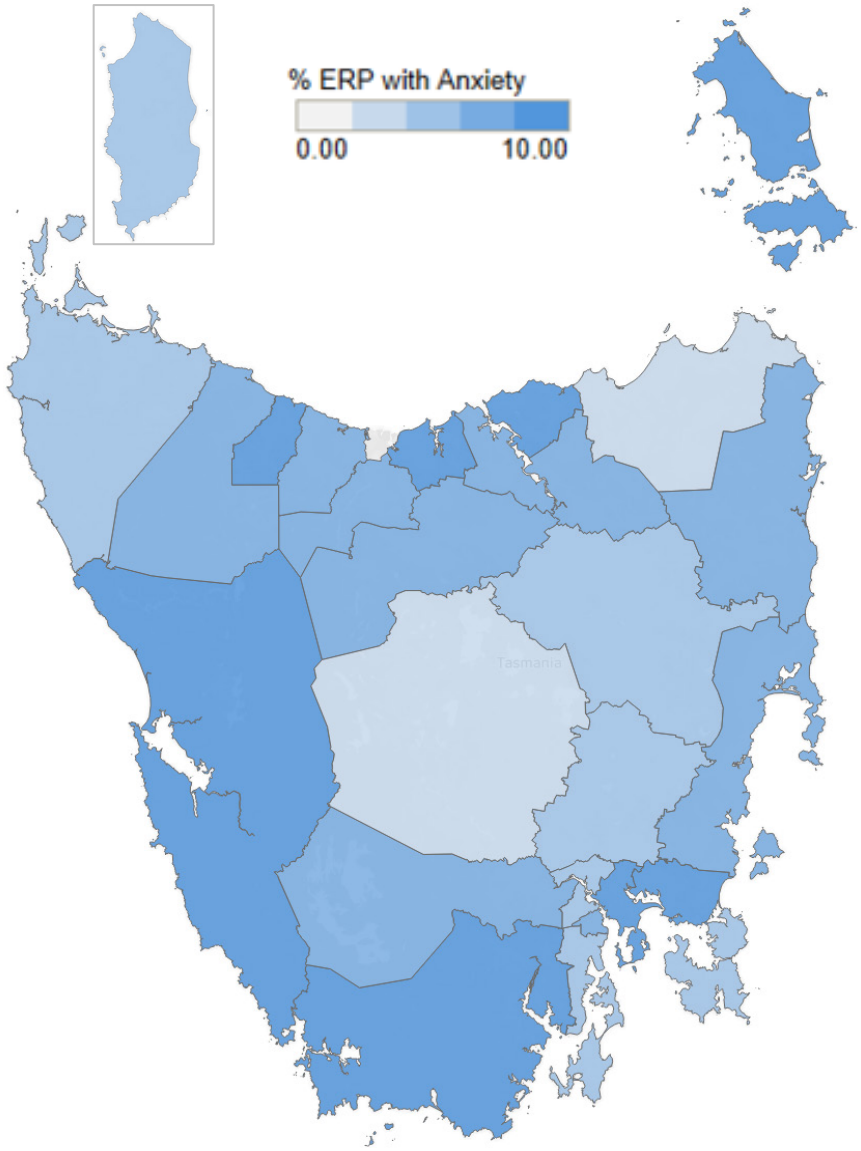
Both depression and anxiety were widely prevalent across Tasmanian LGAs (Figure 10, Figure 11), affecting approximately 2-12% of the estimated residential population in each LGA. Devonport and the Huon Valley were two LGAs with consistently high levels of both depression and anxiety recorded. A demographic summary of people with a mental health condition is available in Appendix 3: Demographic summary of all patients with a mental health condition recorded.

*Figure 8. Percentage of population with coded depression/postnatal depression by LGA, Tasmania, PHIN 2019.*




| LGA | % ERP with depression or postnatal depression |
|---|---|
| Break O'Day | 5.05 |
| Brighton | 4.36 |
| Burnie | 6.38 |
| Central Coast | 6.47 |
| Central Highlands | 2.54 |
| Circular Head | 4.66 |
| Clarence | 6.52 |
| Derwent Valley | 6.78 |
| Devonport | 8.15 |
| Dorset | 2.74 |
| Flinders | 5.92 |
| George Town | 11.26 |
| Glamorgan Spring Bay | 4.27 |
| Glenorchy | 3.85 |
| Hobart | 4.02 |
| Huon Valley | 8.45 |
| Kentish | 6.74 |
| King Island | 5.50 |
| Kingborough | 2.90 |
| Latrobe | 6.94 |
| Launceston | 5.96 |
| Meander Valley | 5.84 |
| Northern Midlands | 3.75 |
| Sorell | 6.95 |
| Southern Midlands | 4.49 |
| Tasman | 2.93 |
| Waratah-Wynyard | 5.51 |
| West Coast | 7.26 |
| West Tamar | 6.74 |

*Figure 9. Percentage of population with coded anxiety by LGA, Tasmania, PHIN 2019.*




| LGA | % ERP with anxiety |
|---|---|
| Break O'Day | 7.24 |
| Brighton | 5.60 |
| Burnie | 9.78 |
| Central Coast | 7.80 |
| Central Highlands | 2.29 |
| Circular Head | 4.29 |
| Clarence | 9.74 |
| Derwent Valley | 7.45 |
| Devonport | 11.23 |
| Dorset | 2.43 |
| Flinders | 8.63 |
| George Town | 8.75 |
| Glamorgan Spring Bay | 7.00 |
| Glenorchy | 5.58 |
| Hobart | 6.96 |
| Huon Valley | 10.20 |
| Kentish | 7.28 |
| King Island | 5.94 |
| Kingborough | 4.59 |
| Latrobe | 9.17 |
| Launceston | 7.08 |
| Meander Valley | 7.03 |
| Northern Midlands | 4.48 |
| Sorell | 10.00 |
| Southern Midlands | 5.81 |
| Tasman | 4.05 |
| Waratah-Wynyard | 7.58 |
| West Coast | 11.13 |
| West Tamar | 7.57 |

# HOW OFTEN DO PEOPLE SEE A GP?

## National comparisons

Most people visit a GP multiple times a year. In 2018, national data indicated that people made an average of 6.6 visits to a GP in the preceding 12 months, compared with 6.2 visits in Tasmania.[4]

Nationally, 11.5% of people visited a GP 12 or more times in one year. The number of GP visits varied by demographic and health characteristics.

- People aged 85 years and over were almost five times more likely to book an appointment to see a GP on 12 or more occasions than those aged 15-24 years.
- People who rated their health as fair or poor (40.6%) were more than six times more likely to book an appointment to see a GP on 12 or more occasions than those who rated their health as excellent, very good or good (6.2%).
- People with a long-term health condition (18.4%) were almost eight times more likely to book an appointment to see a GP on 12 or more occasions than those without (2.4%).[1]

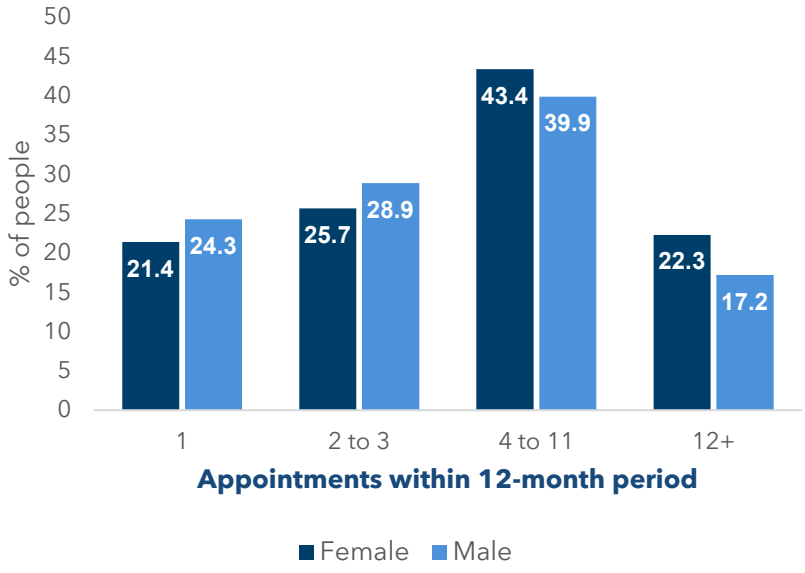
## Number of GP appointments in Tasmania

Tasmanians saw their GP seven times a year on average in 2019. Most people booked an appointment to see a GP 4-11 times a year. Analysis shows that males were more likely to book one to three appointments and females were more likely to book four or more appointments per year (see Figure 12). This is consistent with national findings.[8]

Nearly 20% of patients in the PHIN dataset booked more than 12 appointments in 2019, higher than the national average (11.5%).[1] Appointments booked increased with increasing comorbidity for all patients, however, when comparing across similar levels of comorbidity, individuals who booked more than 12 appointments in the year were more likely to be:

- older (mean age 64 years versus 43 years)
- female (59.6%)
- self-identified as Aboriginal or Torres Strait Islander (4.5% vs 3.1%)
- socioeconomically disadvantaged
- a daily smoker (12.6% vs 10.5%).

*Figure 10. Percentage of people with multiple appointments over 12-month period by gender, Tasmania, PHIN 2019.*



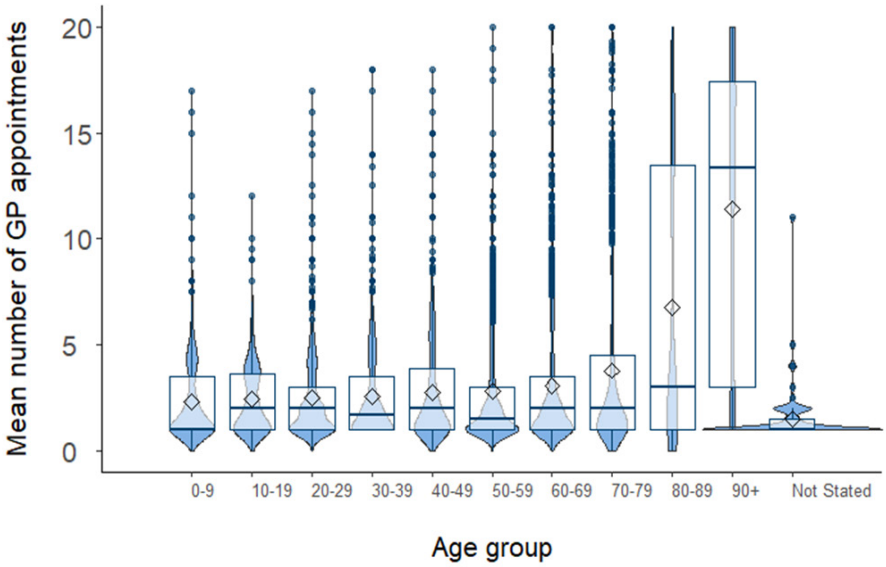
## Factors affecting the number of appointments made

The PHIN dataset indicates that the following factors increased the mean number of GP appointments per year in Tasmania: increasing comorbidity, female gender, age 40 years and older, and living in a rural LGA.

The mean number of GP appointments per person increased steadily with age; this was less pronounced in those aged under 40 years and most pronounced in those aged 70 years and over. In the cohort aged 70 years and over, the mean number of appointments was just under 21 appointments per year.

At the same level of comorbidity, younger people living in peri-urban areas had fewer GP appointments than other groups. People living in rural areas had slightly more appointments per person than those living in urban areas.

*Figure 11. Mean GP appointments per person during the 12-month period, by age group, Tasmania, 2019.*




| Age group | Mean visits per person | Total visits |
|---|---|---|
| 0–9 | 4.4 | 43,037 |
| 10–19 | 3.9 | 39,028 |
| 20–29 | 4.5 | 47,513 |
| 30–39 | 5.0 | 48,132 |
| 40–49 | 6.0 | 45,427 |
| 50–59 | 6.9 | 52,206 |
| 60–69 | 8.5 | 52,977 |
| 70–79 | 12.1 | 38,727 |
| 80–89 | 16.6 | 16,246 |
| 90+ | 19.1 | 3,446 |
| Not stated | 1.5 | 472 |

Notes:
X axis: age groups.
Y axis: mean number of GP appointments during 2019. The mean per age category is indicated by a diamond marker.
Boxplot: median, interquartile range and outliers per age group.
Violin plot: distribution of appointments per age category.
Numerator: Sum of GP appointments reported per age category over the past 12 months.
Denominator: Sum of individuals in that age category over the past 12 months.
Ages above 110 years or missing ages have been reported as not stated.

### Location

The mean number of appointments booked in 2019 varied by LGA. For LGAs where 75% or more of GP practices provided data, the lowest mean number of GP appointments was in the Derwent Valley (5.5) and the highest mean number of appointments was in Flinders (11.4).

Differences between GP access and its association with LGA was not examined for this report as only half of LGAs have three-quarters or more of practices contributing.

Figure 14 demonstrates the differences in the distribution of mean GP appointments by age between the LGAs of Devonport and Latrobe. Devonport is an inner regional LGA, whilst Latrobe is rural. Both LGAs have more than 75% of practices contributing data to the PHIN dataset.

In both LGAs, GP appointments increase with increasing patient age, with a steep rise in the number of GP appointments after the age of 50 years. While this trend continues in Devonport with increasing age, it tapers off in Latrobe beyond the age of approximately 70.

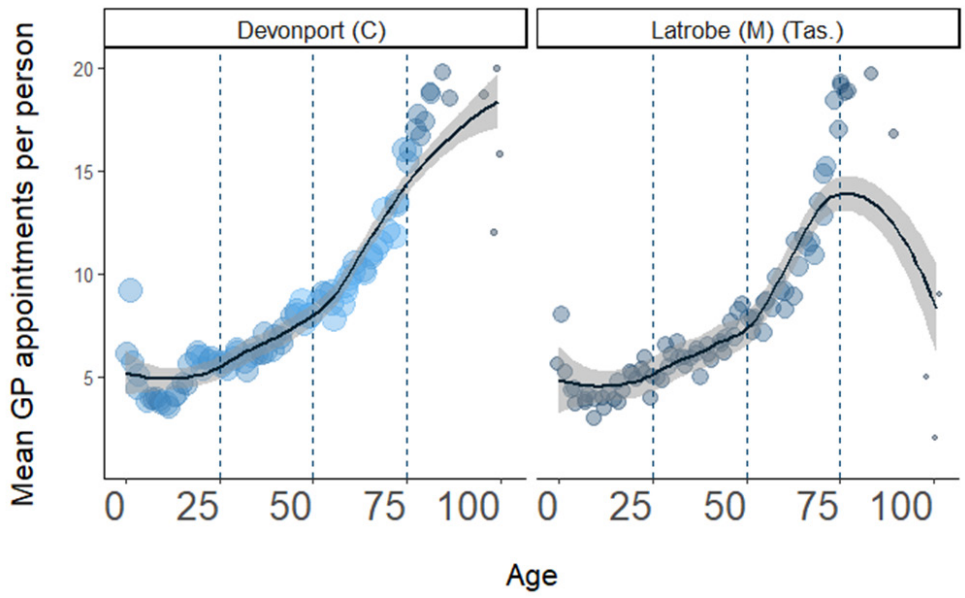
*Table 9. The mean number of appointments per person by LGA (where 75% or more of GP practices provided data), Tasmania, 2019.*

| LGAs with 75% or more of practices contributing data | Mean appointments per person |
|---|---|
| Derwent Valley | 5.5 |
| Southern Midlands | 5.9 |
| Circular Head | 6.0 |
| West Tamar | 6.4 |
| Glamorgan Spring Bay | 7.3 |
| Huon Valley | 7.4 |
| West Coast | 8.0 |
| Waratah-Wynyard | 8.4 |
| Meander Valley | 8.5 |
| Central Coast | 8.7 |
| Devonport | 8.9 |
| George Town | 9.0 |
| Latrobe | 9.5 |
| King Island | 10.5 |
| Flinders | 11.4 |
| Notes: | Numerator: Sum of GP appointments reported per age category and LGA over the past 12 months.<br>Denominator: Sum of individuals in LGA with a reported GP encounter over the past 12 months. |

Overall, there are similar patterns of GP appointments across Tasmanian regions, with inner regional residents (who tend to be younger) generally making fewer appointments per person per year than those in other parts of the state. However, beyond the age of 50, there is a small but statistically significant increase in mean GP appointments per year in inner regional areas (e.g. Devonport) compared to rural areas (e.g. Latrobe). This difference increases with increasing age beyond 50 years. This could be due to rural residents retiring to more populated regions for access to health or aged-related care.

Over time, with more practices per LGA contributing data to the PHIN dataset, more associations and trends may be identified and investigated.

*Figure 12. Mean GP appointments per person, by age, Devonport and Latrobe LGAs, 2019.*



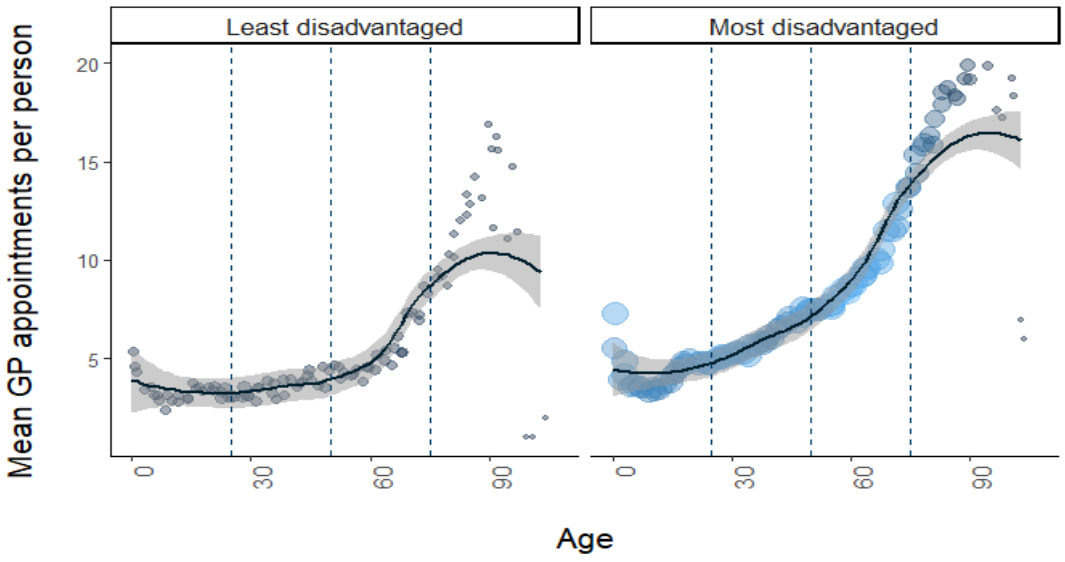

| | |
|---|---|
| Notes: | Numerator: Sum of GP appointments reported per age category and LGA over the past 12 months.<br>Denominator: Sum of individuals in that age category and LGA with a reported GP encounter over the past 12 months.<br>Dotted lines indicate ages 25, 50 and 75 years.<br>Size & colour: Larger, brighter blue circles indicate more individuals in that LGA by that age group.<br>p= 7.691e-06, 95% confidence interval: (-1.3687925, -0.5350192). |

### Socioeconomic status

The mean number of GP appointments varied by socioeconomic status. People who were most socioeconomically disadvantaged saw a GP 1.7 times more often than the least socioeconomically disadvantaged. The increase in mean number of appointments after the age of 60 years was more pronounced for those in the most socioeconomically disadvantaged group.

Children aged 5-15 years saw their GP less often than other age groups but the most disadvantaged children saw a GP more often than children in the least disadvantaged group.

*Figure 13. Comparison of mean GP appointments per person by age and SEIFA category, Tasmania, PHIN 2019.*




| | |
|---|---|
| Notes: | Welch Two Sample t-test<br>t = 61.818, df = 24643, p-value < 2.2e-16, 95% confidence interval: (2.930239, 3.122142). |

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# APPENDICES

Appendix 1: Demographic summary of all people who booked an appointment with a GP in Tasmania in 2019

| | 0-14 (n=58,541) | 15-24 (n=41,848) | 25-64 (n=197,934) | 65+ (n=84,116) | Total (n=386,983) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Mean (SD) | 7.21 (4.06) | 19.7 (2.86) | 45.0 (11.8) | 74.4 (7.28) | 42.5 (24.0) |
| Median [Min, Max] | 7.00 [1.00, 14.0] | 20.0 [15.0, 24.0] | 46.0 [25.0, 64.0] | 73.0 [65.0, 109] | 43.0 [0.00, 109] |
| Missing | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 483 (0.1%) |
| **Sex** | | | | | |
| Male | 30,052 (51.3%) | 18,621 (44.5%) | 89,341 (45.1%) | 39,336 (46.8%) | 179,514 (46.4%) |
| Female | 28,305 (48.4%) | 22,987 (54.9%) | 107,612 (54.4%) | 44,534 (52.9%) | 205,391 (53.1%) |
| Intersex | 5 (0.0%) | 31 (0.1%) | 21 (0.0%) | 5 (0.0%) | 65 (0.0%) |
| Not stated | 179 (0.3%) | 209 (0.5%) | 960 (0.5%) | 241 (0.3%) | 2,013 (0.5%) |
| **Aboriginal or Torres Strait Islander** | | | | | |
| Aboriginal | 2,846 (4.9%) | 1,701 (4.1%) | 4,661 (2.4%) | 903 (1.1%) | 10,268 (2.7%) |
| Aboriginal or Torres Strait Islander | 400 (0.7%) | 201 (0.5%) | 609 (0.3%) | 139 (0.2%) | 1,371 (0.4%) |
| Torres Strait Islander | 112 (0.2%) | 45 (0.1%) | 224 (0.1%) | 53 (0.1%) | 439 (0.1%) |
| Not Indigenous | 39,553 (67.6%) | 29,755 (71.1%) | 149,470 (75.5%) | 67,111 (79.8%) | 288,372 (74.5%) |
| Not stated | 15,630 (26.7%) | 10,146 (24.2%) | 42,970 (21.7%) | 1,5910 (18.9%) | 86,533 (22.4%) |
| **SEIFA quintile (1= most disadvantaged)** | | | | | |
| 1 | 26,628 (45.5%) | 19,039 (45.5%) | 87,152 (44.0%) | 38,235 (45.5%) | 173,058 (44.7%) |
| 2 | 12,457 (21.3%) | 8,031 (19.2%) | 39,940 (20.2%) | 17,327 (20.6%) | 78,653 (20.3%) |
| 3 | 8,622 (14.7%) | 5,810 (13.9%) | 29,721 (15.0%) | 13,707 (16.3%) | 58,451 (15.1%) |
| 4 | 7,677 (13.1%) | 6,048 (14.5%) | 28,679 (14.5%) | 10,149 (12.1%) | 53,047 (13.7%) |
| 5 | 1,767 (3.0%) | 1,877 (4.5%) | 7,486 (3.8%) | 2,825 (3.4%) | 14,079 (3.6%) |
| Missing | 1,390 (2.4%) | 1,043 (2.5%) | 4,956 (2.5%) | 1,873 (2.2%) | 9,695 (2.5%) |
| **Smoking status** | | | | | |
| Daily smoker | 30 (0.1%) | 3,852 (9.2%) | 32,103 (16.2%) | 4,885 (5.8%) | 40,878 (10.6%) |
| Irregular smoker | 1 (0.0%) | 223 (0.5%) | 3,344 (1.7%) | 652 (0.8%) | 4,220 (1.1%) |
| Ex-smoker | 56 (0.1%) | 963 (2.3%) | 39,452 (19.9%) | 28,308 (33.7%) | 68,786 (17.8%) |
| Never smoker | 28,869 (49.3%) | 23,787 (56.8%) | 89,875 (45.4%) | 39,853 (47.4%) | 182,718 (47.2%) |
| Not recorded | 29,585 (50.5%) | 13,023 (31.1%) | 33,160 (16.8%) | 10,418 (12.4%) | 90,381 (23.4%) |
| **Mean appointments booked with a GP** | | | | | |
| Mean (SD) | 4.09 (3.90) | 4.46 (4.56) | 6.28 (7.09) | 12.7 (11.9) | 7.14 (8.40) |
| Median [Min, Max] | 3.00 [0.00, 251] | 3.00 [0.00, 77.0] | 4.00 [0.00, 531] | 9.50 [0.00, 360] | 4.00 [0.00, 531] |

Appendix 2: People with more than 12 GP appointments booked in 2019

| | 0-14 (n=3489) | 15-24 (n=3546) | 25-64 (n=32,033) | 65+ (n=37,197) | Total (n=76,778) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Mean (SD) | 4.55 (4.28) | 20.0 (2.74) | 48.6 (11.3) | 76.5 (7.59) | 58.5 (22.4) |
| Median [Min, Max] | 2.00 [1.00, 14.0] | 20.0 [15.0, 24.0] | 51.0 [25.0, 64.0] | 76.0 [65.0, 109] | 64.0 [0.00, 109] |
| Missing | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 6 (0.0%) |
| **Sex** | | | | | |
| Male | 1,767 (50.6%) | 870 (24.5%) | 1,1685 (36.5%) | 16,355 (44.0%) | 30,955 (40.3%) |
| Female | 1,720 (49.3%) | 2,667 (75.2%) | 20,322 (63.4%) | 20,831 (56.0%) | 45,772 (59.6%) |
| Intersex | 0 (0%) | 6 (0.2%) | 1 (0.0%) | 1 (0.0%) | 8 (0.0%) |
| Not stated | 2 (0.1%) | 3 (0.1%) | 25 (0.1%) | 10 (0.0%) | 43 (0.1%) |
| **Aboriginal or Torres Strait Islander** | | | | | |
| Aboriginal | 264 (7.6%) | 297 (8.4%) | 1,704 (5.3%) | 620 (1.7%) | 2,907 (3.8%) |
| Aboriginal or Torres Strait Islander | 35 (1.0%) | 44 (1.2%) | 204 (0.6%) | 88 (0.2%) | 376 (0.5%) |
| Torres Strait Islander | 9 (0.3%) | 13 (0.4%) | 79 (0.2%) | 32 (0.1%) | 133 (0.2%) |
| Not Indigenous | 2,400 (68.8%) | 2,696 (76.0%) | 26,051 (81.3%) | 31,738 (85.3%) | 63,207 (82.3%) |
| Not stated | 781 (22.4%) | 496 (14.0%) | 3,995 (12.5%) | 4,719 (12.7%) | 10,155 (13.2%) |
| **SEIFA quintile (1= most disadvantaged)** | | | | | |
| 1 | 1,588 (45.5%) | 1,846 (52.1%) | 17,056 (53.2%) | 18,767 (50.5%) | 39,469 (51.4%) |
| 2 | 803 (23.0%) | 714 (20.1%) | 6,958 (21.7%) | 8,091 (21.8%) | 16,688 (21.7%) |
| 3 | 441 (12.6%) | 384 (10.8%) | 3,845 (12.0%) | 5,358 (14.4%) | 10,098 (13.2%) |
| 4 | 460 (13.2%) | 413 (11.6%) | 2,949 (9.2%) | 3387 (9.1%) | 7,278 (9.5%) |
| 5 | 62 (1.8%) | 95 (2.7%) | 453 (1.4%) | 738 (2.0%) | 1,359 (1.8%) |
| Missing | 135 (3.9%) | 94 (2.7%) | 772 (2.4%) | 856 (2.3%) | 1,886 (2.5%) |
| **Smoking Status** | | | | | |
| Daily smoker | 2 (0.1%) | 516 (14.6%) | 6,939 (21.7%) | 2,199 (5.9%) | 9,659 (12.6%) |
| Irregular smoker | 0 (0%) | 19 (0.5%) | 652 (2.0%) | 242 (0.7%) | 913 (1.2%) |
| Ex-smoker | 11 (0.3%) | 190 (5.4%) | 9,348 (29.2%) | 15,102 (40.6%) | 24,653 (32.1%) |
| Never smoker | 1,524 (43.7%) | 2,267 (63.9%) | 13,532 (42.2%) | 18,027 (48.5%) | 35,410 (46.1%) |
| Not recorded | 1,952 (55.9%) | 554 (15.6%) | 1,562 (4.9%) | 1,627 (4.4%) | 6,143 (8.0%) |
| **Mean appointments** | | | | | |
| Mean (SD) | 16.2 (6.28) | 17.2 (6.61) | 19.5 (10.2) | 22.9 (12.6) | 20.9 (11.4) |
| Median [Min, Max] | 15.0 [12.0, 251] | 15.0 [12.0, 77.0] | 16.0 [12.0, 531] | 19.0 [12.0, 360] | 17.0 [12.0, 531] |

Appendix 3: Demographic summary of all patients with a mental health condition recorded.

| | 0-14 (n=3013) | 15-24 (n=8532) | 25-64 (n=50,929) | 65+ (n=16,987) | Total (n=79,466) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Mean (SD) | 10.4 (2.84) | 20.1 (2.74) | 45.0 (11.4) | 74.1 (7.30) | 47.2 (19.6) |
| Median [Min, Max] | 11.0 [1.00, 14.0] | 20.0 [15.0, 24.0] | 46.0 [25.0, 64.0] | 72.0 [65.0, 109] | 48.0 [0.00, 109] |
| Missing | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 3 (0.0%) |
| **Sex** | | | | | |
| Male | 2,059 (68.3%) | 3,304 (38.7%) | 19,110 (37.5%) | 6,098 (35.9%) | 30,575 (38.5%) |
| Female | 947 (31.4%) | 5,196 (60.9%) | 31,760 (62.4%) | 10,884 (64.1%) | 48,787 (61.4%) |
| Not stated | 7 (0.2%) | 16 (0.2%) | 51 (0.1%) | 4 (0.0%) | 79 (0.1%) |
| Intersex | 0 (0%) | 16 (0.2%) | 8 (0.0%) | 1 (0.0%) | 25 (0.0%) |
| **SEIFA quintile (1= most disadvantaged)** | | | | | |
| 1 | 1,576 (52.3%) | 4,155 (48.7%) | 24,438 (48.0%) | 7,941 (46.7%) | 38,113 (48.0%) |
| 2 | 623 (20.7%) | 1,625 (19.0%) | 10,190 (20.0%) | 3,521 (20.7%) | 15,959 (20.1%) |
| 3 | 379 (12.6%) | 1,124 (13.2%) | 7,082 (13.9%) | 2,711 (16.0%) | 11,296 (14.2%) |
| 4 | 299 (9.9%) | 1,092 (12.8%) | 6,596 (13.0%) | 1,944 (11.4%) | 9,932 (12.5%) |
| 5 | 44 (1.5%) | 266 (3.1%) | 1,232 (2.4%) | 456 (2.7%) | 1,998 (2.5%) |
| Missing | 92 (3.1%) | 270 (3.2%) | 1,391 (2.7%) | 414 (2.4%) | 2,168 (2.7%) |
| **Mean appointments** | | | | | |
| Mean (SD) | 5.06 (4.28) | 7.05 (6.55) | 9.40 (9.58) | 17.1 (14.1) | 10.6 (10.9) |
| Median [Min, Max] | 4.00 [1.00, 49.0] | 5.00 [0.00, 71.0] | 7.00 [0.00, 531] | 14.0 [1.00, 360] | 7.00 [0.00, 531] |
| **Number of mental health conditions reported** | | | | | |
| 1 | 2,502 (83.0%) | 5,278 (61.9%) | 32,202 (63.2%) | 12,633 (74.4%) | 52,620 (66.2%) |
| 2 | 448 (14.9%) | 2,903 (34.0%) | 16,793 (33.0%) | 4,215 (24.8%) | 24,359 (30.7%) |
| 3 | 59 (2.0%) | 319 (3.7%) | 1,807 (3.5%) | 133 (0.8%) | 2,318 (2.9%) |
| 4 | 4 (0.1%) | 31 (0.4%) | 121 (0.2%) | 6 (0.0%) | 162 (0.2%) |
| 5 | 0 (0%) | 1 (0.0%) | 6 (0.0%) | 0 (0%) | 7 (0.0%) |

Appendix 4: Demographic summary of all patients with depression recorded.

| | 0-14 (n=180) | 15-24 (n=4896) | 25-64 (n=38,673) | 65+ (n=12,940) | Total (n=56,694) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Mean (SD) | 12.8 (1.82) | 20.6 (2.53) | 45.4 (11.4) | 74.0 (7.24) | 49.7 (18.0) |
| Median [Min, Max] | 13.0 [3.00, 14.0] | 21.0 [15.0, 24.0] | 46.0 [25.0, 64.0] | 72.0 [65.0, 109] | 50.0 [0.00, 109] |
| Missing | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 3 (0.0%) |
| **Sex** | | | | | |
| Male | 72 (40.0%) | 1,495 (30.5%) | 14,049 (36.3%) | 4,761 (36.8%) | 20,381 (35.9%) |
| Female | 107 (59.4%) | 3,384 (69.1%) | 24,588 (63.6%) | 8,176 (63.2%) | 36,255 (63.9%) |
| Not stated | 1 (0.6%) | 8 (0.2%) | 32 (0.1%) | 2 (0.0%) | 44 (0.1%) |
| Intersex | 0 (0%) | 9 (0.2%) | 4 (0.0%) | 1 (0.0%) | 14 (0.0%) |
| **SEIFA quintile (1= most disadvantaged)** | | | | | |
| 1 | 74 (41.1%) | 2,453 (50.1%) | 18,945 (49.0%) | 6,099 (47.1%) | 27,574 (48.6%) |
| 2 | 53 (29.4%) | 948 (19.4%) | 7,863 (20.3%) | 2,721 (21.0%) | 11,585 (20.4%) |
| 3 | 24 (13.3%) | 619 (12.6%) | 5,171 (13.4%) | 2,071 (16.0%) | 7,885 (13.9%) |
| 4 | 21 (11.7%) | 584 (11.9%) | 4,791 (12.4%) | 1,401 (10.8%) | 6,798 (12.0%) |
| 5 | 0 (0%) | 150 (3.1%) | 862 (2.2%) | 338 (2.6%) | 1,350 (2.4%) |
| Missing | 8 (4.4%) | 142 (2.9%) | 1,041 (2.7%) | 310 (2.4%) | 1,502 (2.6%) |
| **Mean number of appointments** | | | | | |
| Mean (SD) | 7.33 (6.05) | 7.61 (6.93) | 9.56 (9.75) | 17.4 (14.2) | 11.2 (11.3) |
| Median [Min, Max] | 6.00 [1.00, 49.0] | 6.00 [0.00, 71.0] | 7.00 [0.00, 531] | 14.0 [1.00, 360] | 8.00 [0.00, 531] |

Appendix 5 : Demographic summary of all patients with anxiety recorded.

| | 0-14 (n=961) | 15-24 (n=4963) | 25-64 (n=25,538) | 65+ (n=7725) | Total (n=39,187) |
|---|---|---|---|---|---|
| **Age** | | | | | |
| Mean (SD) | 11.1 (2.55) | 20.2 (2.67) | 43.9 (11.4) | 74.3 (7.45) | 46.1 (19.3) |
| Median [Min, Max] | 12.0 [3.00, 14.0] | 20.0 [15.0, 24.0] | 44.0 [25.0, 64.0] | 73.0 [65.0, 109] | 45.0 [3.00, 109] |
| **Sex** | | | | | |
| Female | 474 (49.3%) | 3,319 (66.9%) | 16,559 (64.8%) | 5,317 (68.8%) | 25,669 (65.5%) |
| Male | 485 (50.5%) | 1,621 (32.7%) | 8,947 (35.0%) | 2,405 (31.1%) | 13,458 (34.3%) |
| Intersex | 0 (0%) | 14 (0.3%) | 4 (0.0%) | 0 (0%) | 18 (0.0%) |
| Not stated | 2 (0.2%) | 9 (0.2%) | 28 (0.1%) | 3 (0.0%) | 42 (0.1%) |
| **SEIFA quintile (1= most disadvantaged)** | | | | | |
| 1 | 420 (43.7%) | 2,272 (45.8%) | 11,741 (46.0%) | 3,491 (45.2%) | 17,924 (45.7%) |
| 2 | 222 (23.1%) | 926 (18.7%) | 5,058 (19.8%) | 1,601 (20.7%) | 7,807 (19.9%) |
| 3 | 136 (14.2%) | 675 (13.6%) | 3,592 (14.1%) | 1,208 (15.6%) | 5,611 (14.3%) |
| 4 | 124 (12.9%) | 752 (15.2%) | 3,717 (14.6%) | 996 (12.9%) | 5,589 (14.3%) |
| 5 | 18 (1.9%) | 172 (3.5%) | 719 (2.8%) | 226 (2.9%) | 1,135 (2.9%) |
| Missing | 41 (4.3%) | 166 (3.3%) | 711 (2.8%) | 203 (2.6%) | 1,121 (2.9%) |
| **Mean number of appointments** | | | | | |
| Mean (SD) | 5.79 (4.82) | 7.38 (6.60) | 9.37 (9.26) | 16.8 (14.3) | 10.5 (10.6) |
| Median [Min, Max] | 4.00 [1.00, 49.0] | 5.00 [0.00, 68.0] | 7.00 [0.00, 134] | 13.0 [1.00, 360] | 7.00 [0.00, 360] |

Appendix 6. Factors affecting mean number of GP appointments made.

| Factor | Estimate | Standard error | t-value | Pr(>\|t\|) |
|---|---|---|---|---|
| **Intercept** | 3.18184 | 0.35266 | 9.022 | <2e-16*** |
| **Mean multimorbidity** | 2.83570 | 0.06921 | 40.972 | < 2e-16 *** |
| **Gender** | | | | |
| Male | -1.41871 | 0.14196 | -9.994 | < 2e-16 *** |
| Intersex | -0.31632 | 0.71451 | -0.443 | 0.65799 |
| Not stated | -4.27843 | 0.33040 | -12.949 | < 2e-16 *** |
| **Age group** | | | | |
| 10–19 years | –0.71296 | 0.41748 | –1.708 | 0.08771 |
| 20–29 years | –0.16223 | 0.39435 | –0.411 | 0.68080 |
| 30–39 years | 0.23793 | 0.38709 | 0.615 | 0.53879 |
| 40–49 years | 0.97877 | 0.38747 | 2.526 | 0.01155* |
| 50–59 years | 0.51610 | 0.39185 | 1.317 | 0.18784 |
| 60–69 years | 1.07924 | 0.40037 | 2.696 | 0.00704** |
| 70–79 years | 3.37677 | 0.41523 | 8.132 | 4.8e-16*** |
| 80–89 years | 5.63120 | 0.42702 | 13.187 | <2e-16*** |
| 90+ years | 7.80999 | 0.43822 | 17.822 | <2e-16*** |
| Not stated | –0.54469 | 0.90942 | –0.599 | 0.54923 |
| **Location** | | | | |
| Rural | 2.08383 | 0.14917 | 13.969 | < 2e-16 *** |

Significance codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
glm = mean_visits ~ mean_multimorb + Gender + Age_Group + urbanised, data = pats)
Null deviance: 691337 on 8644 degrees of freedom, Residual deviance: 351774 on 8629 degrees of freedom, AIC: 56606,
Number of Fisher Scoring iterations: 2, Dispersion parameter or gaussian family 40.77